

REMARKS

This communication follows the Amendment mailed on December 19, 2001 and telephone conferences with Examiner Hamden on February 14 and February 19, 2002. In the February 14th interview, Examiner Hamden indicated that a combination of claims 21-25 would be allowable. The undersigned disagreed with the applicability of the Richeson Jr. and the patentability of inventions without all of the features of the claims. Nevertheless, the undersigned expressed the desire to obtain some patent coverage, reserving the right to file continuing applications for broader coverage.

In the February 19, 2002 interview, the undersigned provided proposed claim amendments for independent claims 12 and 21 and amendments for some of the dependent claims. The proposed independent claims did not include a comparator recited, for example, in claim 25. Examiner Hamden indicated the claims would be allowable with a minor change to claim 12 to recite the "Harley Davidson type engine" in the body of the claim 12.

Each of the remaining dependent claims have been amended as necessary to properly depend directly or indirectly from claims 12 and 21.

In view of the foregoing, applicants respectfully request reconsideration of the application as amended. Favorable action upon all remaining claims (5-7, 11, 12, 15, 16, 21, 25-27) is solicited.



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The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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MARKED-UP VERSION OF REPLACEMENT CLAIMS

5. (Amended) The [ignition timing device] combination of claim [4] 21 wherein the variable reluctance sensor comprises;
- a support tube insertable in the port and having a bore extending from a first end to a second end;
 - a sensor housing insertable in the bore; and
 - a variable reluctance probe disposed in the sensor housing.
6. (Amended) The [ignition timing device] combination of claim 5 wherein the support tube includes exterior threads adapted to mate with threads of the port.
7. (Amended) The [ignition timing device] combination of claim 6 wherein the support tube includes interior threads and the sensor housing includes exterior threads adapted to mate with the interior threads.
11. (Amended) The combination [ignition timing device] of claim [1] 21 wherein the ignition sensor comprises a light detector.
12. (Twice Amended) A method for timing a[n] Harley Davidson type engine having a timing port through which a timing mark indicative of a position of a movable member of the engine can be seen, the method comprising:
- securing a variable reluctance sensor proximate the timing port of the Harley Davidson type engine;



sensing the presence of the timing mark of the engine with the variable reluctance sensor and providing a timing mark signal as a function thereof;
sensing an occurrence of an ignition spark and providing an ignition signal as a function thereof;
filtering ignition sparks of compression strokes from ignition sparks of compression and exhaust strokes of a selected cylinder[, the] and providing a filtered ignition signal being indicative of only the ignition sparks of compression strokes;
generating a delayed signal having a selected delay from the filtered ignition signal;
comparing the timing mark signal to the [ignition] delayed signal and providing an output signal indicative of substantial simultaneous occurrence of the timing mark signal and the [ignition] delayed signal; and
operating an indicator as a function of the output signal.

15. (Amended) The method of claim 12 [and further comprising] wherein filtering comprises comparing the ignition signal with a selected threshold.

16. (Amended) The method of claim [15]12 [and further comprising] wherein filtering comprises:

detecting a peak amplitude of the ignition signal; and
forming the selected threshold as a function of the ignition signal from at least one previous spark.



21. (Amended) [In]A combination [with a Harley Davidson motorcycle engine having a timing port and a timing mark indicative of a position of a movable member, an ignition timing device for timing the engine, the ignition timing device] comprising:

a Harley Davidson type engine having a timing port and a timing mark indicative of a position of a movable member, wherein the Harley Davidson type engine provides ignition sparks for compression strokes and exhaust strokes to a selected cylinder;

an ignition timing device including:

a variable reluctance sensor secured in the timing port to provide a timing mark signal indicative of presence of the timing mark;

an ignition sensor adapted to provide an ignition signal indicative of the occurrence of an ignition spark;

a filter receiving the ignition signal and to provide a filtered ignition signal, the filter filtering ignition sparks of compression strokes from ignition sparks of compression and exhaust strokes of the selected cylinder;

a delay element receiving the filtered ignition signal and providing a delayed signal having a selected delay from the filtered ignition signal;

a comparator receiving the timing mark signal and the [ignition] delayed signal, the comparator providing an output signal indicative of



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substantial simultaneous occurrence of the timing mark signal and the [ignition] delayed signal; and

an indicator receiving the output signal and operable as a function thereof.

25. (Amended) The [ignition timing device] combination of claim 21 wherein the [ignition sensor] filter includes a comparator [providing the ignition signal], wherein the filtered ignition signal is indicative of a spark exceeding a selected threshold.

26. (Amended) The [ignition timing device] combination of claim 25 wherein the selected threshold is constant.

27. (Amended) The [ignition timing device] combination of claim [26] 25 and further comprising a peak detector, and wherein the selected threshold is a function of at least one previous detected spark.

